Rational Pharmaceutical Management Plus
Report of the Pharmacy Management Information System National Consensus Building Workshop

Jennie Lates

April 5–6, 2005
Otjibamba Lodge, Otjiwarongo, Namibia

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About RPM Plus

RPM Plus works in more than 20 developing countries to provide technical assistance to strengthen pharmaceutical and health commodity management systems. The program offers technical guidance and assists in strategy development and program implementation both in improving the availability of health commodities—pharmaceuticals, vaccines, supplies, and basic medical equipment—of assured quality for maternal and child health, HIV/AIDS, infectious diseases, and family planning and in promoting the appropriate use of health commodities in the public and private sectors.

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CONTENTS

ACRONYMS

AIDS	acquired immune deficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
CSS	clinical support services
HIS	health information system
HIV	human immunodeficiency virus
M&E	monitoring and evaluation
MIS	management information system
MoHSS	Ministry of Health and Social Services
MS	medical store
MSH	Management Sciences for Health
MU	medicine use
NEMList	Namibia Essential Medicines List
NHIS	Namibian Health Information System
NMPC	National Medicines Policy Coordination
OP	outpatient
PA	pharmacist's assistant
PHC	primary health care
PMIS	pharmacy management information system
RPM Plus	Rational Pharmaceutical Management Plus
Rx	prescription (or prescribed)
SHPA	senior health program administrator
SOP	standard operating procedure
STGs	standard treatment guidelines
TC	therapeutic committee
THC	tertiary health care
USAID	U.S. Agency for International Development

BACKGROUND

Medicines play a critical role in the provision of health care in any country and many activities are currently being carried out by the Ministry of Health and Social Services (MoHSS) to ensure that all Namibians have access to safe and effective medicines they require for both prevention and treatment of ill health.

To manage the medicines appropriately, it is essential that all levels of management in the MoHSS have current in-depth knowledge of the availability of medicines, the functioning of the supply system, and the way these important resources are being used. For all this to be achieved, a functioning management information system for pharmacy is a must.

The first pharmacy management information system (PMIS) was launched in 2002, following discussions with pharmacists and pharmacist's assistants across the country as to what information is essential to guide the work of pharmaceutical services in the MoHSS. However, this PMIS, once launched, did not receive the attention and time commitment necessary to ensure that it functioned as planned. As a result it was implemented in only one or two hospitals and therefore did not provide the intended guidance to help districts, regions, and the national level to monitor and improve the pharmaceutical services provided by the MoHSS.

Given the critical role that pharmaceutical services plays within the provision of quality health care, this situation was not acceptable. With the rapid rollout of the antiretroviral treatment program across Namibia, the importance of having an effective and responsive pharmaceutical service has been highlighted further.

As part of the overall support being provided by the Rational Pharmaceutical Management Plus (RPM Plus) project of the Management Sciences for Health (MSH), under the U.S. President's Emergency Plan for HIV/AIDS Relief, an assessment of the management information system (MIS) and monitoring and evaluation (M&E) within Pharmaceutical Services in Namibia was conducted in May 2004.[1] The report of this assessment highlighted the current lack of a functioning MIS and M&E system for pharmacy in the MoHSS.

As a result of this assessment, a Task Force for Pharmacy MIS was formed and has met regularly since August 2004. The task force has been responsible for examining the various responsibilities of pharmaceutical services and identifying potential indicators suitable to be included in a PMIS.

The PMIS National Consensus Building Workshop was organized to obtain input from a wide range of interested stakeholders on the suitability of the indicators proposed by the PMIS Task Force. Also discussed were the best method for implementing the PMIS and plans for the next National Medicine Use (MU) Survey due to be conducted later in the year.

[1] Bhattarai, H. R. 2004. *Assessment of the Pharmaceutical Management Information and Monitoring and Evaluation Systems of the Republic of Namibia: Trip Report.* Arlington, VA: Management Sciences for Health.

This report forms part of the technical support provided by RPM Plus to the Pharmaceutical Division of the MoHSS to strengthen pharmaceutical management systems to support the scale-up and expansion of the HIV/AIDS program in Namibia.

WORKSHOP PROCEEDINGS

Official Opening Ceremony

The workshop was officially opened by the Honorable Minister of Health and Social Services Mr. Richard Kamwi, in the presence of the Honorable Regional Governor for Otjozondjupa Region, Mr. Theophilus Eiseb, Chief Regional Officer: Otjozondjupa, and other invited guests. The Honorable Minister urged all participants of the workshop (Annex 1) to redouble their efforts to ensure constant availability of adequate supplies and appropriate use of supplies to the maximum benefit of the Namibian people. He also reminded participants that the Namibian people, with great anticipation and justifiable expectations, are looking toward all health workers for solutions to their health problems. See Annex 4 for the full text of the Honorable Minister's opening speech.

Objectives of the Workshop

Ms. Jennie Lates, Pharmaceutical Management Advisor: National Medicines Policy Coordination (NMCP)/MoHSS, briefly presented the objectives of the workshop and the session outline. The participants then reviewed the proposed agenda and agreed it was suitable.

Introduction to MIS and Indicators

Mr. Adam Muheua, Senior Health Program Administrator (SHPA): Management Information & Research, gave a presentation covering the definition of MIS, the current situation in the MoHSS regarding MIS, different types of indicators that can be used, criteria for developing indicators, and recommendations from the situation analysis of health management information systems in the MoHSS.[2]

Mr. Muheua also informed the meeting that there is now a national committee for MIS and plans are in place to integrate all the MISs into the MoHSS.

This presentation gave the participants the necessary background to enable them to effectively assess the proposed set of indicators for the PMIS.

Present Situation: MIS and M&E in MoHSS Pharmaceutical Services

Mr. Johannes ǂGaeseb, Acting Deputy Director: Pharmaceutical Services, gave an overview of the current situation of MIS and M&E in pharmaceutical services within the MoHSS. He highlighted the fact that the PMIS launched in 2002 was not adequately implemented, which

[2] Gouws, M., G. Reagon, and C. Hedberg. 2004 *Situation Analysis of Health Management Information Systems in the Namibian Ministry of Health and Social Services – Final Report.* Bellville, South Africa: University of Western Cape.

resulted in the current situation. The meeting was informed that currently there is no standard, regular flow of information on pharmacy services from the operational level through the regions to the national level. This lack of data makes it impossible for managers at all levels to accurately assess the services provided and make suitable plans. The advent and rapid rollout of antiretroviral therapy (ART) in Namibia has also highlighted the urgent need for an effective PMIS in the MoHSS.

During discussions following this presentation, the lack of ready access to computing facilities by pharmacists and the resultant negative impact on their output was highlighted. Mr. ǂGaeseb noted that the process of requesting purchase of computers for all regional pharmacists and also for each referral hospital pharmacy was in motion. The meeting requested that this process be expedited.

Mr. Pumuue Katjiuanjo, Director: Karas Region, expressed the opinion that all pharmacies should be rapidly computerized. Ms. Lates responded that this area is being examined, with a workshop already conducted to determine what functions should be included in any software to be introduced to MoHSS pharmacies. She stressed, however, that computerization of pharmacies would not solve all problems because if pharmacy staff do not currently keep accurate stock cards, they likely would not keep accurate computer records of stock transactions either. Ms. Lates acknowledged that computerized pharmacies would make regular reporting requirements much easier thanks to the availability of electronic data.

Namibian Health Information System

Ms. Elizabeth Matroos, SHPA: Epidemiology, gave an overview of the Namibian Health Information System (NHIS). The system has been running effectively for many years and the lessons learned from the NHIS can be used to guide implementation of the PMIS. One of these lessons is that timely forwarding of data has greatly improved since all districts were provided with computers and e-mail facilities (where telecommunications permitted) specifically for the NHIS.

Data entry in the NHIS poses a challenge. In districts without a health information system (HIS) data clerk, the data is normally entered by the sister in charge of each department, but this still leaves problems for entering data received by clinics and health centers. The amount of data involved in the PMIS will be much less than for the NHIS, but the challenges of data entry should still be considered.

The presentation highlighted the importance of ensuring the existence of local knowledge and capacity to manage the software used for computerization of an MIS, so that changes to the program can be made as necessary. Ms. Lates highlighted the fact that the tools drafted so far for the PMIS were all Microsoft Excel–based and therefore it should not be a problem to edit any tools for the PMIS. She also mentioned that the National Essential Indicators Matrix is based on Microsoft Excel so it will be easy to slot Pharmacy Essential Indicators into the National Matrix.

Introduction of Proposed PMIS Indicators

Mr. Joseph Rushubiza, Chief Pharmacist: Windhoek Central Hospital and PMIS Task Force Chairperson, proceeded to introduce the various indicators proposed by the PMIS Task Force. He explained that all indicators relate directly to one of four main sections in the National Pharmaceutical Master Plan—

- Medicine Supply
- Rational Medicine Use
- Human Resource Development
- Medicine Financing

Mr. Rushubiza then explained the rationale behind each of the indicators. See Annex 5 for the details of each indicator and the rationale for including it in the PMIS.

Group Work to Discuss Proposed Indicators

Ms. Lates gave an introduction to the group work, explaining that the groups were expected to assess each individual indicator according to the criteria set out in the previous presentation by Mr. Muheua to determine if the indicator is appropriate for inclusion in PMIS. If it is suitable for inclusion then the group should also review the proposed calculation, frequency of reporting, and whether the indicator should be included in the National Essential Indicators Framework.

The workshop then split up into four groups for the next three hours to deliberate. See Annex 6 for the worksheet provided to guide work-group discussions.

Feedback from Group Work

Each group's nominated representative gave feedback on their discussions. The feedback covered which indicators (out of those proposed) should be included in the PMIS and which they thought should be essential indicators. After each group presentation time was allowed for questions and clarification.

Consensus Building Session

Ms. Lates guided the consensus building session by giving the workshop the comparative decisions made by each group for each indicator proposed. In some cases, there was a clear majority of feeling as to which indicators to keep and which to exclude from the PMIS, as well as which should be essential indicators. Other indicators caused much discussion, but by the end of the session a consensus on which indicators should be included in the PMIS was reached. See Annex 7 for details.

Implementation of the PMIS

Mr. B. Nwachukwu gave a presentation on the draft plans for implementation of the PMIS, which the participants then discussed. A plan of action including time frame was decided on for implementation of the PMIS. See Annex 9 for details.

Plans for the Next National Medicine Use Survey

Ms. Lates gave an overview of National MU Surveys in Namibia to date and informed the meeting that the next MU survey is planned for later this year. She then requested the meeting to give input on several discussion points—

a. Scope of the MU Survey

The meeting decided that the scope of the survey should not be greatly changed from the previous MU surveys. It was decided to maintain the current number of health facilities at each level.

b. Data Collection

The meeting agreed that, to minimize possible bias during the data collection process, data should be collected by health workers who are not directly linked to the health facility where data collection is occurring. Therefore, health workers from one region will collect data from facilities in a neighboring region.

c. ART Clinics

It was agreed to add a new class of health facility—ART clinics—to the MU survey so that data regarding medicine use in this new service could be collected, without skewing overall results. The ART clinics to be sampled will be selected from those that see enough patients to make data collection practical. The actual number of patient encounters to be assessed will be decided after discussion with a statistician.

The list of key items to be reviewed at ART clinics will be different from the normal key items list, so as to reflect the different scope of service provided. For ART clinics the key items list will include all the antiretroviral (ARV) medicines normally kept, co-trimoxazole, fluconazole capsules and suspension, isoniazid tablets, pyridoxine tablets, iron and folic acid tablets, condoms, and syringes (for administration of oral solutions).

d. Indicators for Fourth MU Survey

The meeting agreed that the indicators to be used for the next MU survey should be the same as those used in the previous (2001) survey with the following changes—

- Remove the indicator "Average time key medicines are out of stock in health facilities" as accurate data for this indicator was not readily available.

- Add a new indicator "Average waiting time at hospital pharmacies." The aim of this indicator is to reflect one aspect of the quality of service patients receive at the hospital pharmacies. Waiting time will be assessed as the time from when a patient submits a prescription to the dispensary until the patient receives his or her medication from the dispenser.

e. Key Items List

The previously used list of key items was reviewed and it was agreed to keep it the same apart from replacing chloroquine (which is now no longer in the Namibian malaria treatment guidelines) with sulfadoxine and pyrimethamine tablets.

Summary and Close

Mr. Rushubiza gave a summary of what had been achieved in the two-day workshop before Mr. ǂGaeseb officially closed the workshop. Mr. ǂGaeseb thanked all present for their active participation and hard work during the workshop, which had led to some very fruitful discussions and consensus. He also thanked the task force for their dedication and hard work which had resulted in the workshop successfully meeting its objectives. Mr. ǂGaeseb then wished all a safe journey back to their duty stations and declared the workshop closed.

Additional Activities

To take advantage of having many pharmacy staff together at one time, three sessions were held to review the draft ART standard operating procedures (SOPs). These meetings are documented in a separate report by Mrs. Dawn Pereko.

NEXT STEPS

Immediate Follow-up Activities

Development of PMIS user manual and finalization of data collection tools.

Development of National MU Survey user notes and finalization of data collection tools. Selection of health facilities and clarification of number of patient encounters to be included for ART clinics.

Recommendations

Continuing support for the development and implementation of the PMIS is essential to ensure its success. In addition, once the PMIS is launched, continuous follow-up with regions and health facilities is needed to ensure that the system is utilized to its full extent as a tool for guiding decision making at the various levels in the MoHSS.

To ensure effective implementation of the new PMIS, efforts should be made to provide the required computing facilities to support the collection and processing of data and information.

REFERENCES

Bhattarai, H. R. 2004. *Assessment of the Pharmaceutical Management Information and Monitoring and Evaluation Systems of the Republic of Namibia: Trip Report.* Arlington, VA: Management Sciences for Health.

Gouws, M., G. Reagon, and C. Hedberg. 2004. *Situation Analysis of Health Management Information Systems in the Namibian Ministry of Health and Social Services – Final Report.* Bellville, South Africa: University of Western Cape.

ANNEX 1. PARTICIPANTS

Region	Participant	Post
Oshikoto	Emmanuel Basura	Onandjokwe Pharmacist
Otjozondjupa	Emilia Nangombe	Pharmacist's Assistant Otjiwarongo
	Mr. V. Tauya	SHPA MIS
Omusati	Mathew Bahonge	Regional Pharmacist
	Ms. Shifotoka	SHPA MIS
Omaheke	Ms. F. Kaifanwa	Pharmacist's Assistant
	Mrs. D. Kakujaha	Acting Director
	Mr. B. Nwachukwu	Regional Pharmacist
Kunene	Mrs. H. Akilhome	Regional Pharmacist
	Mr. S. Nataneel	SHPA MIS
Karas	Mr. A. Anderson	Regional Pharmacist
	Mr. P. Katjiuanjo	Director
Kavango	Ms. Mectilde Kawana	Pharmacist's Assistant Rundu Medical Store (MS)
Hardap	Mr. C. L. Ouma	Regional Pharmacist
Erongo	Mr. K. Kambyambya	Regional Pharmacist
Caprivi	Nelson Olabanji	Regional Pharmacist
Referral Hospitals		
Windhoek Central Hospital	Mr. J. Rushubiza	Chief Pharmacist
	Ms. M. K. Puriza	HIS Officer
Katutura Intermediate Hospital	Gwendoline Tenga	ART Pharmacist
	Mrs. A. Kamuzora	Pharmacist
Rundu	Mr. C. Mano	ART Pharmacist
MoHSS HQ		
Tertiary Health Care (THC) & Clinical Support Services (CSS)	Jorokee Tjiho	Acting Director: THC & CSS
Pharmaceutical Services	Johannes ǂGaeseb	Acting Deputy Director: Pharmaceutical Services
	Ms. J. Lates	National Medicines Policy Coordination
Policy, Planning, & Human Resource Development	Adam Muheua	SHPA, Research & MIS Subdivision
Primary Health Care	Ms. Matroos	SHPA, Epidemiology Section
Partners		
Catholic Health Services	Patricia Götz	Chief Pharmacist
MSH, RPM Plus	Dawn Pereko	Senior Program Associate

ANNEX 2. AGENDA

REVISED AGENDA FOR PHARMACY MIS CONSENSUS BUILDING WORKSHOP
APRIL 4–7, 2005

Monday April 4

Participants arrive

Session for Pharmacy Staff

4:00 P.M.–6:30 P.M.	Review of draft ART SOPs	Mrs. D. Pereko

Tuesday April 5

Chairperson: Mr. J. Rushubiza
Rapporteur: Mr. B. Nwachukwu

Time	Topic	Presenter
8:30 A.M.	Welcome	Mr. J. ╪Gaeseb
8:45 A.M.	Introduction of participants	Chair
9:00 A.M.	Objectives of workshop and session outline	Ms. J. Lates
9:30 A.M.	Introduction of MIS and indicators	Subdivision: Planning
10:15 A.M.–10:45 A.M. TEA BREAK		
10:45 A.M.	Discussion of current MIS/M&E situation in MoHSS pharmaceutical services	Mr. J. ╪Gaeseb
11:30 A.M.	Current HIS and future plans	Ms. E. Matroos

12:30 P.M.–1:30 P.M. LUNCH

Chairperson: Mr. K. Kambyambya
Rapporteur: Ms. J. Lates

1:30 P.M.	Introduce proposed indicators	Mr. J. Rushubiza
2:15 P.M.	Group work to review proposed indicators	Chair
3:30 P.M.–4:00 P.M. TEA BREAK		
4:00 P.M.–5:00 P.M.	Continue group work	Chair
5:00 P.M.–7:30 P.M.	Review of draft ART SOPs	Mrs. D. Pereko

Wednesday April 6

Chairperson: Ms. J. Lates
Rapporteurs: Mr. J. Rushubiza and Mr. A. Muheua

8:00 A.M.	Feedback from group work	Chair
9:00 A.M.	**Official Opening Ceremony** **Honorable Minister** **Mr. Richard Kamwi**	**Master of Ceremonies:** **Mrs. D. J. Tjipura-Tjiho**

10:00 A.M.–10:30 A.M. TEA BREAK

Time	**Topic**	**Presenter**
10:30 A.M.	Feedback from group work cont.	Chair
11:30 A.M.	Consensus building	Chair

12:30 P.M.–1:30 P.M. LUNCH

Chairperson: Mr. J. Rushubiza Rapporteur: Mr. K. Kambyambya

1:30 P.M.	Implementation of PMIS	Mr. B. Nwachukwu
2:30 P.M.	Discussion on next National MU Survey	Ms. J. Lates

4:00 P.M.–4:30 P.M. TEA BREAK

4:30 P.M.	Summary and conclusion	Chair
5:00 P.M.	Close	Chair
5:00 P.M.–7:00 P.M.	Review of draft ART SOPs	Mrs. D. Pereko

Thursday April 7

Session for pharmacy staff

8:00 A.M.–10:00 A.M.	Continue discussions of draft ART SOPs	Mrs. D. Pereko

10:00 A.M.–10:30 A.M. TEA BREAK

10:30 A.M.	Participants depart	

ANNEX 3. OPENING CEREMONY AGENDA

OPENING CEREMONY

PHARMACY MANAGEMENT INFORMATION SYSTEM NATIONAL CONSENSUS BUILDING WORKSHOP

9:00 A.M. Wednesday April 6, 2005, Otjibamba Lodge, Otjiwarongo

Master of Ceremonies
Mrs. D. J. Tjipura-Tjiho, Acting Director: THC & CSS

9:00 A.M.	Introductions	Master of Ceremonies
9:15 A.M.	Welcome	Honorable Mr. T. Eiseb, Otjozondjupa Regional Governor
9:30 A.M.	Official Opening Address	Honorable Minister Mr. R. Kamwi
10:00 A.M.	Tea break	

ANNEX 4. HONORABLE MINISTER KAMWI'S OPENING SPEECH

STATEMENT BY HON. RICHARD NCHABI KAMWI, MINISTER MOHSS, ON THE OCCASION OF THE PHARMACY MANAGEMENT INFORMATION SYSTEM NATIONAL CONSENSUS BUILDING WORKSHOP

Director of Ceremonies, Mrs. Tjipura-Tjiho, Acting Director: THC&CSS and Deputy Director: Pharmaceutical Services,
Hon. Governor of Otjozondjupa Region, Mr. Theophilus Eiseb
Mr. Katjiuanjo, Director: Karas Region
Mr. ǂGaeseb, Acting Deputy Director: Pharmaceutical Services

Dear Participants, Members of the Press, Ladies and Gentlemen:

It gives me great pleasure to be here today to open this Pharmacy Management Information System National Consensus Building Workshop. It is good to see the large number of participants that have come from all over the country for this important workshop and I am especially pleased to see that the attendance is not limited to pharmacy staff. For any new system to work it is important that the whole health management team supports the system. That is why this National Consensus Building workshop is so important. Your attendance here today demonstrates the high priority you and your colleagues assign to this event as well as recognition of the importance of Management Information Systems in our day-to-day work.

Director of Ceremonies,
The first Pharmacy Management Information System was launched in 2002, following discussions with pharmacists and pharmacist's assistants across the country as to what information is essential to guide the work of pharmaceutical services in the MoHSS. However this MIS, once launched, did not receive the attention and time commitment necessary to ensure that it functioned as planned. As a result it was implemented in only one or two hospitals.

With the rapid rollout of the antiretroviral treatment program across Namibia, the importance of having an effective and responsive pharmaceutical service has been highlighted further.

As part of the overall support being provided by the Rational Pharmaceutical Management Plus project of the Management Sciences for Health, under the U.S. Government's Emergency Plan for HIV/AIDS Relief, an assessment of the management information systems (MISs) and monitoring and evaluation (M&E) within Pharmaceutical Services in Namibia was conducted in May 2004. The report of this assessment highlighted the current lack of a functioning MIS and M&E system for pharmacy in the MoHSS.

I urge you, as you discuss the indicators and the development of the PMIS as a whole, to remember that the collection of data is only the first step of a Management Information System. Unless this data is analyzed and action taken to address problems revealed by the data analysis, the process of data collection alone is unproductive, even a waste of time.

Distinguished Ladies and Gentlemen,

The results of the 3rd National Medicine Use survey that was conducted in 2001 showed that in many important areas, the quality of services is unfortunately not improving despite all our efforts. The rate of antibiotic prescribing continues to increase, and urgent action is now required to improve on this aspect of prescribing. Hand in hand with the increasing use of antibiotics goes an increasing level of polypharmacy, which must also be tackled. Therefore two of the proposed indicators look at the rate of antibiotic prescribing and number of medicines prescribed. Another area of concern highlighted by the 3rd National Medicine Use Survey was the fact that stock cards are not used adequately in many health facilities. As a result, supplies are not managed properly, and regions complain at every National Management Meeting about "no stocks." Sometimes occurrences of "no stock" are caused by problems such as inaccurate quantification, poor supplier performance, and so on but this does not explain the variations in "no stock" from hospital to hospital and region to region.

The PMIS that you are helping design during this workshop will give you key information about pharmaceutical services in your particular institutions. The PMIS will enable you to analyze your own information at the facility or regional level and design and implement solutions appropriate for your own situation. This will put you in a position to be proactive managers of the resources under your responsibility and not to wait for the national level to point out the problems.

The agenda for this workshop includes time allocated to discuss the next National Medicines Use Survey, which is due to be conducted in May–June 2005. The National Medicine Use Surveys are another important tool enabling us to monitor medicine use in Namibia, reflecting the impact of interventions conducted to improve appropriate use of medicines. It is important when reviewing potential indicators for the PMIS to identify whether a particular set of data should be collected on a regular basis or whether it is more appropriate that it be collected once every two years during the National Medicine Use Surveys.

Director of Ceremonies,
The Ministry will continue to be faced with challenges and must effectively implement its programs and plans to tackle those challenges. One of the most tenacious issues is clearly the HIV/AIDS pandemic, which so severely affects our country. Other health problems such as malaria and tuberculosis will also continue to inflict a heavy toll on our people and drain our meager resources. Your skills, expertise, and efforts as health workers and managers will have a significant impact on the success of our plans to tackle these health problems. I urge you to redouble your efforts to ensure constant availability of adequate supplies and appropriate use of those supplies to the maximum benefit of our people. We should always remember that the Namibian people with great anticipation and justifiable expectations are looking forward to you health workers for solutions to their health problems.

Finally, I would like to thank our partner Management Sciences for Health who, through the Rational Pharmaceutical Management Plus Program that is funded by the U.S. President's Emergency Plan for HIV/AIDS Relief through the U.S. Agency for International Development (USAID) Namibia, is providing technical and financial support for this workshop specifically,

and ongoing support for the strengthening of pharmaceutical management systems in the Ministry.

I wish to commend the members of the PMIS Task Force for all the hard work put into the PMIS and for organizing this workshop timeously when the president of the country is calling for hard work and efficient service delivery. I urge you to continue the good work by ensuring that the PMIS is launched, implemented, and appropriately utilized across the country. I wish all participants a productive workshop.

Director of Ceremonies, Ladies and Gentlemen, I now have the honor to declare the Pharmacy Management Information System Consensus Building Workshop officially opened.

Thank you.

ANNEX 5. INTRODUCTION TO PROPOSED INDICATORS

No.	Indicator	Rationale
Stock Management and Item Availability		
1	% of key items available in the pharmacy	To monitor how the procurement and distribution systems have achieved the objective of making medicines available at all levels at all times. Comparison of data from different facilities can show where extra attention is needed.
2	% facilities with all key medicines in stock	To monitor the extent of availability of medicines in a region or nation.
3	% facilities out of stock of condoms	To monitor the extent of availability of this key commodity in the fight against AIDS.
4	% of medicines actually dispensed	To measure the ability of a health facility to meet the needs of its users. It is also linked to the availability of drugs.
5	No. of days per quarter any ARV medicine (normally kept) has been out of stock	To measure the ability of the procurement and distribution systems to maintain a constant supply of these medicines of public health concern. This indicators differs from % availability in that it is measured over time.
6	% of stock cards whose balance is same as physical stock (clinics, health centers and hospitals)	To monitor accuracy of usage of stock cards.
7	% of stock cards where physical count and record count is less than 10% variation	To measure the degree of accuracy of records (degree to which the records reflect the real stock levels). Inaccurate records are unreliable to monitor the status of inventory, estimate future needs, and control pilferage and wastage of stock.
8	% of stock cards correctly completed (hospitals)	To monitor complete use of stock cards. Stock cards are important tools of stock record keeping. They should act as a "one-stop document." Completeness and accuracy make them reliable and useful.
9	% of items no stock from Medical Stores per main order	To determine level of service from Medical Stores; to offer some explanation as to why % availability of key drugs may be as it is; to identify any discrepancies between facilities, regions, and Medical Stores.
10	% of items received from Medical Stores per main order with expiry date < or = 3 months	To monitor the extent to which Medical Stores adhere to agreement of not distributing stock with 3 months or less shelf life; to correlate this indicator and the wastage rate.
11	Annual wastage rate (% expenditure on expired items)	To monitor the level of wastage due to expiry. May be due to poor stock management or poor distribution system.
12	% of days that the temperature of medicine refrigerator was within acceptable range	To monitor the extent of adherence to specified storage conditions.
13	% of facilities that had temperature of medicine refrigerator within acceptable range for more than 90% of days	To monitor the extent of good storage practices in a region or nation.

No.	Indicator	Rationale
Rational Use of Medicines and Quality of Care		
1	% of vital reference material available in the pharmacy	To determine availability of basic reference materials (among them NEMList, standard treatment guidelines [STGs]). Overall availability of STGs measures the extent of availability of unbiased information—one of the conditions of promoting appropriate use of medicines.
2	% of essential reference material available in the pharmacy	
3	Average no. of medicines per outpatient (OP) prescription	To describe prescriber's behavior. Too high or too low an average number may indicate poor prescribing practices and irrational medicine use.
4	% of generic names per outpatient prescription	Using generic names ensures common language among health care providers. It also eliminates a need of a dispenser to seek permission from the prescriber for generic substitution when brand names are used.
5	% of outpatient prescriptions with an antibiotic	To assess the extent of antibiotic use in order to promote their rational use. Misuse of antibiotics has resulted in treatment failures, resistance, and wastage of meagre resources.
6	% Therapeutics Committee (TC) meetings held and minuted out of no. planned	To monitor the existence and functionality of TCs in facilities. TCs are important bodies in controlling medicine utilization and promoting rational medicine use.
7	% patients returning on time to collect refill prescriptions (ART)	To monitor rate of defaulting among patients on ART. Such defaulting has a potentially serious impact on public health.
Human Resource Development and Workload		
1	Population per pharmacist	To measure access to skilled pharmacy personnel; to compare equitable distribution of skilled pharmacy personnel; where ratio of population per trained pharmacy personnel is high, to use figures to plan recruitment and training.
2	Population per pharmacist's assistant	
3	Ratio of vacant to filled pharmacists posts	To measure the extent to which established pharmacists' need has been fulfilled; use data to motivate for recruitment of more staff.
4	Ratio of vacant to filled pharmacist's assistants posts	To measure the extent to which established pharmacist's assistants' need has been fulfilled; use data to motivate for recruitment of more staff.
5	Average number of prescriptions received at pharmacy per dispenser	To assess the workload of dispenser; to act as a basis of distribution of dispensers.
Medicine Financing		
1	Annual expenditure/capita on pharmaceutical and clinical supplies	To measure the adequacy of financing of medicines and related supplies.
2	Annual expenditure/capita of pharmaceuticals per district	To assess equity of distribution of pharmaceutical budget; to compare expenditure of different districts and identify problem areas.
3	Annual expenditure/capita of clinical supplies per district	
4	% expenditure spent on ARVs and related supplies	To assess what percentage of drug budget is used on ARVs. It is thought that ARVs are expensive.

ANNEX 6. DETAILS OF PROPOSED PMIS INDICATORS

	Indicator	Numerator	Denominator	Data collection by	Data collection from	Tool	Level	Frequency
Stock Management and Items Availability								
1	% of key items available in the pharmacy	No. of key items present	Total no. of key items	By Pharmacist's Assistant (PA)/Hospital Pharmacist	From stock	Tally Sheet 2	District, Regional, National	Quarterly
2	% facilities with all key medicines in stock	No. of facilities with all key items present	Total no. of facilities assessed (in region or nationally)	By Regional Pharmacist/NMPC	From facility-level PMIS data	Tally Sheet 2	Region, National	Quarterly
3	% facilities out of stock of condoms	No. of facilities with no condoms	Total no. of facilities assessed (in region or nationally)	By Regional Pharmacist/NMPC	From facility-level PMIS data	Tally Sheet 2	Region, National	Quarterly
4	% of medicines actually dispensed	No. of medicines dispensed	No. of medicines Rx	By PA/Hospital Pharmacist	From 30 OP Rx	Tally Sheet 3	District, Regional, National	6 monthly
5	No. of days per quarter any ARV medicine (normally kept) has been out of stock	No. of days one or more ARV out of stock	90 days	By PA/Hospital Pharmacist	Stock records		District, Regional, National	Quarterly
6	% of stock cards whose balance is same as physical stock (clinics, health centers, and hospitals)	No. of stock cards reflecting accurate balance	No. of stock cards checked	By PA/Hospital Pharmacist	From 30 cards	Supervision Checklist	District, Regional, National	6 monthly

	Indicator	Numerator	Denominator	Data collection by	Data collection from	Tool	Level	Frequency
7	% of stock cards where physical count and record count is less than 10% variation	No. of stock cards with accurate balance and those with <10% variation	No. of stock cards checked	By PA/Hospital Pharmacist/ Regional Pharmacist	From 30 cards	Supervision Checklist	District, Regional, National	6 monthly
8	% of stock cards correctly completed (hospitals)	No. of stock cards filled correctly	No. of stock cards checked	From 30 cards	From 30 cards	Supervision Checklist	District, Regional, National	6 monthly
9	% of items no stock from Medical Stores per main order	No. of items received	No. of items ordered	By PA/Hospital Pharmacist	From MS delivery notes	Tally Sheet 4	District, Regional, National	Every main order (6/52)
10	% of items received from Medical Stores per main order with expiry date < or = 3 months	No. of items received with < or = 3/12 expiry date	No. of items received	By PA/Hospital Pharmacist	From MS delivery notes and stock received	Tally Sheet 4	District, Regional, National	Every main order (6/52)
11	Annual wastage rate (% expenditure on expired items)	Value of medicines expired in year	Value of medicines purchased in year	By PA/Hospital Pharmacist	Expired medicines register and invoices	Tally Sheet 5	District, Regional, National	Annually
12	% of days that the temperature of medicine refrigerator was within acceptable range	No. of days temp was 2–8°C	No. of days assessed	By PA/Hospital Pharmacist	From fridge temperature recording sheet	?	District, Regional, National	Quarterly
13	% of facilities that had temperature of medicine refrigerator within acceptable range for more than 90% of days	No. of facilities with fridge temp between 2–8°C for more than 90% of days	Total no. of facilities assessed (in region or nationally)	By Regional Pharmacist/NMPC	From facility-level PMIS data	?	Region, National	Quarterly

	Indicator	Numerator	Denominator	Data collection by	Data collection from	Tool	Level	Frequency
Rational Use of Medicines and Quality of Care								
1	% of vital reference material available in the pharmacy	No. present	Total no.	By PA/Hospital Pharmacist	From reference books	Tally Sheet 1	District, Regional, National	Annually
2	% of essential reference material available in the pharmacy	No. present	Total no.	By PA/Hospital Pharmacist	From reference books	Tally Sheet 1	District, Regional, National	Annually
3	Average no. of medicines per outpatient prescription	No. of medicines prescribed	No. of OP Rx	By PA/Hospital Pharmacist	From 30 OP Rx	Tally Sheet 3	District, Regional, National	6 monthly
4	% of generic names per outpatient prescription	No. of medicines Rx generically	No. of medicines Rx	By PA/Hospital Pharmacist	From 30 OP Rx	Tally Sheet 3	District, Regional, National	6 monthly
5	% of outpatient prescriptions with an antibiotic	No. of Rx with an antibiotic	No. of Rx	By PA/Hospital Pharmacist	From 30 OP Rx	Tally Sheet 3	District, Regional, National	6 monthly
6	% Therapeutics Committees meetings held and minuted out of no. planned	No. of TC meetings held and minuted	No. of TC meetings planned	By PA/Hospital Pharmacist	TC minutes		District, Regional, National	Quarterly
7	% patients returning on time to collect refill prescriptions (ART)	No. of patients return on time for refill	No. of patients expected to collect refill	By PA/Hospital Pharmacist	ARV records		District, Regional, National	Quarterly
Human Resource Development and Workload								
1	Population per pharmacist	No. of pharmacists	Population served	By Hospital/Regional Pharmacist	Staff and population data	Tally Sheet 5	District, Regional, National	Annually

	Indicator	Numerator	Denominator	Data collection by	Data collection from	Tool	Level	Frequency
2	Population per pharmacist's assistant	No. of pharmacist's assistants	Population served	By PA/Hospital Pharmacist	Staff and population data	Tally Sheet 5	District, Regional, National	Annually
3	Ratio of vacant to filled pharmacists posts	Filled posts	Vacant posts	By Hospital/Regional Pharmacist	Staff data	?	District, Regional, National	Annually
4	Ratio of vacant to filled pharmacist's assistants posts	Filled posts	Vacant posts	By PA/Hospital Pharmacist	Staff data	?	District, Regional, National	Annually
5	Average number of prescriptions received at pharmacy per dispenser	No. of Rx received at pharmacy	No. of dispensers (PAs and dispensing pharmacists)	By PA/Hospital Pharmacist	From tally of incoming Rx	Tally Sheet 6	District, Regional, National	Quarterly
Medicine Financing								
1	Annual expenditure/capita on pharmaceutical and clinical supplies	Total expenditure	Population served	By PA/Hospital Pharmacist	Invoices and population data	Tally Sheet 5	District, Regional, National	Annually
2	Annual expenditure/capita of pharmaceuticals per district	Expenditure on pharmaceuticals	Population served	By PA/Hospital Pharmacist	Invoices and population data	Tally Sheet 5	District, Regional, National	Annually
3	Annual expenditure/capita of clinical supplies per district	Expenditure on clinical supplies	Population served	By PA/Hospital Pharmacist	Invoices and population data	Tally Sheet 5	District, Regional, National	Annually
4	% expenditure spent on ARVs and related supplies	Expenditure on ARVs and related supplies	Total expenditure	By PA/Hospital Pharmacist	Invoices		District, Regional, National	Quarterly

ANNEX 7. WORKSHOP CONSENSUS ON STATUS OF PROPOSED INDICATORS

No.	Indicator	Rationale	Comments	Include/Exclude /Edit	Essential?	Frequency of Data Collection
Stock Management and Items Availability						
1	% of key items available in the pharmacy	To monitor how the procurement and distribution systems have achieved the objective of making medicines available at all levels at all times. Comparison of data from different facilities can show where extra attention is needed.	Collect data at primary health care (PHC) level as well as district hospital if possible.	Include	YES	Quarterly
2	% facilities with all key medicines in stock	To monitor the extent of availability of medicines in a region or nation.	Also calculate at district level for those districts that have data from more than one health facility.	Include		Quarterly
3	% facilities out of stock of condoms	To monitor the extent of availability of this key commodity in the fight against AIDS.	Covered in No. 1	EXCLUDE		
4	% of medicines actually dispensed	To measure the ability of a health facility to meet the needs of its users. It is also linked to the availability of drugs.	Write out “Rx” as prescription.	Include	YES	6 monthly
5	No. of days per quarter any ARV medicine (normally kept) has been out of stock	To measure the ability of the procurement and distribution systems to maintain a constant supply of these medicines of public health concern. This indicator differs from % availability in that it is measured over time.	Add words “…in main pharmacy store” to indicator definition.	Include	YES	Quarterly
6	% of stock cards whose balance is same as physical stock (clinics, health centers, and hospitals)	To monitor accuracy of usage of stock cards.	PA check in clinics; regional pharmacist check in hospital pharmacy.	Include		6 monthly

No.	Indicator	Rationale	Comments	Include/Exclude /Edit	Essential?	Frequency of Data Collection
7	% of stock cards where physical count and record count is less than 10% variation	To measure the degree of accuracy of records (degree to which the records reflect the real stock levels). Inaccurate records are unreliable to monitor the status of inventory, estimate future needs, and control pilferage and wastage of stock.	Difficult to calculate.	EXCLUDE		
8	% of stock cards correctly completed (hospitals)	To monitor complete use of stock cards. Stock cards are important tools of stock record keeping. They should act as a "one-stop document." Completeness and accuracy make them reliable and useful.		EXCLUDE		
9	% of items not received from Medical Stores per main order	To determine level of service from Medical Stores; to offer some explanation as to why % availability of key drugs may be as it is; to identify any discrepancies between facilities, regions, and Medical Stores.	Change numerator to "No. of items not received."	Include		Every main order
10	% of items received from Medical Stores per main order with expiry date < or = 3 months	To monitor the extent to which Medical Stores adhere to agreement of not distributing stock with 3 months or less shelf life; to correlate this indicator and the wastage rate.		EXCLUDE		
11	Annual wastage rate (% expenditure on expired/wasted items)	To monitor the level of wastage. May be due to poor stock management or poor distribution system.	Collect monthly, report annually. Add other ways of wastage in user notes.	Include	YES	Annual
12	% of days that the temperature of medicine refrigerator was within acceptable range	To monitor the extent of adherence to specified storage conditions.	Denominator 90 days. Tool for data collection is supervision checklist.	Include		6 monthly

No.	Indicator	Rationale	Comments	Include/Exclude /Edit	Essential?	Frequency of Data Collection
P	% of days that the temperature of main store was less than 30°C		Included to measure store temp. Make store temp record chart.	ADD		6 monthly
13	% of facilities that had temperature of medicine refrigerator within acceptable range for more than 90% of days			EXCLUDE		
P	% of items overstocked according to National Stock Management Guidelines		Need to review current national stock control guidelines to decide on practical min & max stocks at facilities before this can be added.	NOT Added		
Rational Use of Medicines and Quality of Care						
1	% of vital reference material available in the pharmacy	To determine availability of basic reference materials (among them NEMlist, STGs). Overall availability of STGs measures the extent of availability of unbiased information—one of the conditions of promoting appropriate use of medicines.	Combine with Indicator 2; add acts & regulations; add ART on STGs; remove MIMS.	Include		Annual
2	% of essential reference material available in the pharmacy		Combine with above.	EXCLUDE		
3	Average no. of medicines per outpatient prescription	To describe prescriber's behavior. Too high or too low an average number may indicate poor prescribing practices and irrational medicine use.		Include		6 monthly

No.	Indicator	Rationale	Comments	Include/Exclude /Edit	Essential?	Frequency of Data Collection
4	% of medicines prescribed by generic name per outpatient prescription	Using generic names ensures common language among health care providers. It also eliminates the need of a dispenser to seek permission from the prescriber for generic substitution when brand names are used.		Include		6 monthly
5	% of outpatient prescriptions with an antibiotic	To assess the extent of antibiotic use in order to promote their rational use. Misuse of antibiotics has resulted in treatment failures, resistance, and wastage of meagre resources.	Change denominator to 30 prescriptions.	Include		6 monthly
6	% Therapeutics Committees held and minuted out of no. planned	To monitor the existence and functionality of TCs in facilities. TCs are important bodies in controlling medicine utilization and promoting rational medicine use.	Add word “meetings” to definition.	Include	YES	Quarterly
7	% patients returning on time to collect refill prescriptions (ART)	To monitor rate of defaulting among patients on ART. Such defaulting has a potentially serious impact on public health.	Change indicator to “% patients defaulting” (no show for 2/12).	REWORD		Quarterly
Human Resource Development and Workload						
1	Population per pharmacist	To measure access to skilled pharmacy personnel; to compare equitable distribution of skilled pharmacy personnel; where ratio of population per trained pharmacy personnel is high, to use figures to plan recruitment and training.		Include	YES	Annual
2	Population per pharmacist’s assistant			Include	YES	Annual
3	Ratio of vacant to filled pharmacists posts	To measure the extent to which established pharmacists’ need has been fulfilled; use data to motivate for recruitment of more staff.	Change to “% of pharmacists posts filled” and alter calculation in line with this.	Reword		Annual

No.	Indicator	Rationale	Comments	Include/Exclude /Edit	Essential?	Frequency of Data Collection
4	Ratio of vacant to filled pharmacist's assistants posts	To measure the extent to which established pharmacist's assistants' need has been fulfilled; use data to motivate for recruitment of more staff.	Change to "% of pharmacist's assistant posts filled" and alter calculation in line with this.	Reword		Annual
5	Average number of prescriptions received at pharmacy per dispenser	To assess the workload of dispenser; to act as a basis of distribution of dispensers.	Both inpatient and outpatient prescriptions to be counted. Collect data daily, report quarterly.	Include		Quarterly
Medicine Financing						
1	Annual expenditure/capita on pharmaceutical and clinical supplies	To measure the level of financing of medicines and related supplies.		Include	YES	Annual
2	Annual expenditure/capita of pharmaceuticals per district	To assess equity of distribution of pharmaceutical budget; to compare expenditure of different districts and identify problem areas.		EXCLUDE		
3	Annual expenditure/capita of clinical supplies per district			EXCLUDE		
4	% expenditure spent on ARVs and related supplies	To assess what percentage of drug budget is used on ARVs. It is thought that ARVs are expensive.	For national level only. Remove "and related supplies."	Reword	YES	Annual

ANNEX 8. WORKSHOP CONSENSUS ON INDICATORS TO BE INCLUDED IN THE PMIS

No.	Indicator	Rationale	Comments	Essential?	Frequency of Data Collection
Stock Management and Item Availability					
1	% of key items available in the pharmacy	To monitor how the procurement and distribution systems have achieved the objective of making medicines available at all levels at all times. Comparison of data from different facilities can show where extra attention is needed.	Collect data at PHC level as well as district hospital if possible.	YES	Quarterly
2	% facilities with all key medicines in stock	To monitor the extent of availability of medicines in a region or nation.	Also calculate at district level for those districts that have data from more than one health facility.	—	Quarterly
3	% of medicines actually dispensed	To measure the ability of a health facility to meet the needs of its users. It is also linked to the availability of drugs.	Write out “Rx” as prescription.	YES	6 monthly
4	No. of days per quarter at least one ARV medicine (normally kept) has been out of stock.	To measure the ability of the procurement and distribution systems to maintain a constant supply of these medicines of public health concern. This indicator differs from % availability in that it is measured over time.	Add words “…in main pharmacy store” to indicator definition.	YES	Quarterly
5	% of stock cards whose balance is same as physical stock (clinics, health centers, and hospitals)	To monitor accuracy of maintenance of stock records.	PA check in clinics; regional pharmacist check in hospital pharmacy.	—	6 monthly
6	% of items ordered but not received from Medical Stores per main order	To determine level of service from Medical Stores; to offer some explanation as to why % availability of key drugs may be as it is; to identify any discrepancies between facilities, regions, and Medical Stores.	Change numerator to “No. of items not received.”	—	Every main order

No.	Indicator	Rationale	Comments	Essential?	Frequency of Data Collection
7	Annual wastage rate (% expenditure on expired/wasted items)	To monitor the level of wastage. May be due to poor stock management or poor distribution system.	Collect monthly, report annually. Add other ways of wastage in user notes.	YES	Annual
8	% of days that the temperature of medicine refrigerator was within acceptable range	To monitor the extent of adherence to specified storage conditions.	Denominator 90 days. Tool for data collection is supervision checklist.	—	6 monthly
9	% of days that the temperature of main store was less than 30°C	—	Included to measure store temp. Make store temp record chart.	—	6 monthly
Rational Use of Medicines and Quality of Care					
1	% of vital reference material available in the pharmacy	To determine availability of basic reference materials (among them NEMlist, STGs). Overall availability of STGs measures the extent of availability of unbiased information—one of the conditions of promoting appropriate use of medicines.	Combine with Indicator 2; add acts & regulations; add ART on STGs; remove MIMS	—	Annual
2	Average no. of medicines per outpatient prescription	To describe prescriber's behavior. Too high or too low an average number may indicate poor prescribing practices and irrational medicine use.	—	—	6 monthly
3	% of medicines prescribed by generic name per outpatient prescription	Using generic names ensures common language among health care providers. It also eliminates a need of a dispenser to seek permission from the prescriber for generic substitution when brand names are used.	—	—	6 monthly
4	% of outpatient prescriptions containing an antibiotic	To assess the extent of antibiotic use in order to promote their rational use. Misuse of antibiotics has resulted in treatment failures, resistance, and wastage of meager resources.	Change denominator to 30 prescriptions.	—	6 monthly

No.	Indicator	Rationale	Comments	Essential?	Frequency of Data Collection
5	% Therapeutics Committee meetings held and minuted out of no. planned	To monitor the existence and functionality of TCs in facilities. TCs are important bodies in controlling medicine utilization and promoting rational medicine use.	Add word "meetings" to definition.	YES	Quarterly
6	% patients returning on time to collect refill prescriptions (ART)	To monitor rate of defaulting among patients on ART. Such defaulting has a potentially serious impact on public health.	Change indicator to "% patients defaulting" (no show for 2/12).	—	Quarterly
Human Resource Development and Workload					
1	Population per pharmacist	To measure access to skilled pharmacy personnel; to compare equitable distribution of skilled pharmacy personnel; where ratio of population per trained pharmacy personnel is high, to use figures to plan recruitment and training.	—	YES	Annual
2	Population per pharmacist's assistant		—	YES	Annual
3	Ratio of vacant to filled pharmacists posts	To measure the extent to which established pharmacists' need has been fulfilled; use data to motivate for recruitment of more staff.	Change to "% of pharmacists posts filled" and alter calculation in line with this.	—	Annual
4	Ratio of vacant to filled pharmacist's assistants posts	To measure the extent to which established pharmacist's assistants' need has been fulfilled; use data to motivate for recruitment of more staff.	Change to "% of pharmacist's assistants posts filled" and alter calculation in line with this.	—	Annual
5	Average number of prescriptions received at pharmacy per dispenser	To assess the workload of dispenser; to act as a basis of distribution of dispensers.	Both inpatient and outpatient prescriptions to be counted. Collect data daily, report quarterly.	—	Quarterly

Medicine Financing					
1	Annual expenditure/capita on pharmaceutical and clinical supplies	To measure the level of financing of medicines and related supplies.		YES	Annual
2	% expenditure spent on ARVs and related supplies	To assess what percentage of drug budget is used on ARVs. It is thought that ARVs are expensive.	For national level only. Remove “and related supplies.”	YES	Annual

ANNEX 9. PMIS IMPLEMENTATION PLAN

Activity	Time Frame	Responsible
Develop PMIS manual and tools	May–June 05	Task Force
Field test	June–July 05	Task Force
Review tools and manual	June–July 05	Task Force
Develop training modules	June–July 05	Task Force
Present to Policy and Management Development and Review Committee	Aug 05	Task Force
Print documents	Sep 05	Task Force
Officially launch PMIS	Oct 05	Task Force
Conduct training for regional representatives	Nov 05	Task Force
Regional reps train other pharmacy staff	Feb–March 06	Regional Reps & Task Force
Remove any old PMIS forms	Feb–March 06	Regional/Hospital Pharmacy
Implement at all levels	April 1– Ongoing	All Stakeholders
Feedback	Ongoing	DCC/RMT/NMPC